GN Docket Nos. 09-47, 09-51, 09-137COMMENT SOUGHT ON DEFINING “BROADBAND”
NBP Public Notice #1

We now seek more targeted comment on three aspects of this issue: (1) the general form, characteristics, and performance indicators that should be included in a definition of broadband; (2) the thresholds that should be assigned to these performance indicators today; and (3) how the definition should be reevaluated over time.

Form, Characteristics, and Performance Indicators. Much of the discussion of any proposal to define “broadband” tends to center on download and upload throughput.[1] Download and upload throughput are important, but neither is precise or diverse enough to describe broadband satisfactorily.[2] For example, advertised throughput rates generally differ from actual rates, are not uniformly measured, and have different constraints over different technologies.[3] In addition, it is unclear what the end points of the connection are over which throughput is measured or whether the performance of the end points is reflected in the stated throughput. Moreover, there are network characteristics - such as latency, reliability, and mobility - that are relevant for certain applications but not others. Accordingly, we seek comment on:
the form that a definition of broadband should take;
Answered below
whether to develop a single definition, or multiple definitions;
No their should be one definition for broadband.
whether an application-based approach to defining broadband would work, and how such an approach could be expressed in terms of performance indicators;
the key characteristics and specific performance indicators that should be used to define broadband;

what segment(s) of the network each performance indicator should measure, such as the local access link to the end user, or an end-to-end path;
how factors such as latency, jitter, traffic loading, diurnal patterns, reliability, and mobility should specifically be taken into account;
whether different performance indicators or definitions should be developed based on technological or other distinctions, such as mobility or the provision of the service over a wired or wireless network;
the feasibility and verifiability of measuring different performance indicators.

The form that a definition of broadband should take;

First one should take in to account that the definition of broadband must be an ever-changing and living definition.

Since broadband applications continue to increase in bandwidth requirements, so should the definition of broadband. And the broadband applications that are driving the increase in bandwidth are limited by the network last mile speeds. With this said, the majority of broadband applications will be built to operate at the ADV broadband network speeds. This would mean that if you were to take the average actual last mile network speeds of the top ten countries ranked by the largest broadband populations - this average speed of the last mile throughput (not last mile capacity alone, but actual sustained bandwidth throughput) would give you the best definition of broadband, at least relating to speed needed to use the majority of current broadband applications. This would be a better method than to continue to set a static definition for what is the minimum speed for broadband since it will continue to always be out of date.

There is a clear correlation between the average broadband speed in the top ten Internet-using countries and the development of new broadband applications and their requirements for bandwidth. For Internet and broadband applications to be sustainable, their bandwidth requirements of their applications cannot exceed the capabilities of the majority of the world's broadband Internet users sustainable Internet download speeds. If we take the average actual sustainable throughput of the top ten broadband counties, then the average download speed of the top ten would be the definition of broadband. The top ten countries list should be based on broadband population and download speeds, determined by sustained download speeds.

Thresholds. After identifying key characteristics and performance indicators, a definition of broadband must identify acceptable thresholds - typically minimums.[4] Accordingly, we seek comment on:
what minimum thresholds should be assigned to the performance indicators;
the minimum thresholds necessary for broad classes of applications to function properly;
whether we should adopt multiple, escalating tiers of minimum thresholds.

Thresholds.

The performance of broadband networks must be adequate to support needed service such as VOIP and VPN and other necessary low latency applications.

Truth in Marketing.

The speed the ISP advertises should have to be a true advertised sustainable speed. Currently the broadband consumer has no way to tell the difference between broadband ISPs. The current

definition allows ISPs to claim network download speeds that are the maximum speed of the last mile technology and have no relation to actually sustainable download and upload performance. The broadband consumers are only given the “up to” download and upload speeds and the monthly price as their primary information to make the decision of ISP to which to subscribe.

ISPs marketing the maximum speed of their last mile broadband technology as their “up to” Internet download and upload speeds has lead to ISPs having to oversell their backbone Internet capacity in order to be sustainable. This practice of overselling network capacity has left Internet providers that advertise real sustainable last mile broadband speed at an apparent disadvantage, as the average consumer sees them as overpriced and not as fast at those ISPs marketing their oversold network capacity. Basically, as far as the end consumer can see, the higher speed and lower cost is a better value. History repeats itself - and this is the same problem that happened with orange juice. Until the government made the change in the naming of orange juice products and set a standard to what was fresh orange juice, the consumer had to make a choice in purchasing orange juice based on the cost per quart. This is similar to the way broadband is sold by price per Mbs “up to” speed. The government had to make a new definition of what was “real” orange juice. This meant that there had to be a given percentage of fresh orange juice - to - water to be sold as orange juice and a difference product label for those made from concentrate. The government still allowed the orange juice made from concentrate or containing more water than what the government decided was pure orange juice to be sold, but the pure orange juice was labeled

as orange juice and those made from concentrate were labeled as such. This lesson is a good example. This both protected the orange growers that made a quality product as well as protecting the consumer by giving them another piece of standardized information to make an informed decision in choosing orange juice for the families. Broadband Internet should be treated the same way and the broadband customer should be given the necessary information to make a informed choice in broadband providers.

The ISP that offer a low ratio of oversell of bandwidth, such as a suggested 5:1 ratio, should be able to market their service as broadband Internet and those that had bandwidth oversell ratios higher than say 10:1 ratio would have to marketed as “high speed Internet connection” instead of broadband. This ratio, or quality of service, will be absolutely important for the deployment of IPTV and other 21st century broadband applications that will require constant Internet bandwidth utilization, unlike the demand of typical 20 century web browser-based online services.

Broadband Internet customers are clearly starting to watch more live news and television streaming broadcasts. The success of youtube.com is a good example of this 21st century changing broadband utilization. The FCC definition for broadband clearly needs to include a standard for sustained Internet speeds that can be marketed as broadband Internet and those ISPs that cannot meet this requirement will market their Internet service as high speed Internet. Again this will give the consumer the extra bit of information to make a qualified decision in choosing their broadband service provider. The majority of costumers then will demand a broadband Internet service that can

support services as streaming video and audio. And those consumers that basically just want broadband Internet for faster web browsing and occasional streaming media will choose the low cost high speed Internet service providers. This is the same as real orange juice and orange juice made from concentrate solution. Both products still are sold and the consumer has a clear choice in cost and quality.

To summarize, we should replace the current the definition of broadband that is based on the last mile technology capacity and replace this with one based on actual bandwidth sustainable speeds. This could be based on the capacity of the ISPs backbone connection to the Internet in Mbs, divided by their number of broadband customers. In setting this sustained Internet speed required to meet the definition of broadband, it is important that the minimum level set for sustained broadband Internet speeds must not be so high that the cost of Internet bandwidth raises this to where the price of broadband Internet service is un affordable and unsustainable to deploy in rural America. It is clear that we should not call an Internet service broadband when the ISP's backbone bandwidth is oversold to the point that the calculated average download speed that are less than a dial-up connection. Currently this is not the case - an ISP can offer a broadband Internet service to 100 customers using a single 768 Kbs DSL connection as their backbone connection to the Internet - this "less than dial-up speed" service would still meet the current FCC definition for broadband as long as the last mile equipment meets the FCC definitions for broadband.

Updates. The Internet and broadband networks

have been characterized by rapid evolution and change. While a static set of objectively measured thresholds may be useful to compare networks at a given time, or over time, a static definition will fail to address changing needs and habits.[5] Accordingly, we seek comment on: what ongoing process should be put in place to update the definition, particularly the threshold levels; how often should such updates should occur; what criteria should be used to adjust thresholds over time; how modifications over time to the definition will affect the Commission's ability to collect and publish meaningful data on broadband deployment and adoption.

The definitions should be set once every three years. This will allow ISPs enough time to increase Internet bandwidth connections to meet the new definitions of broadband. The criteria for determining the broadband minimum speed should be based on the average broadband speeds of the top ten nations based on broadband population numbers. Broadband applications bandwidth needs will be based on this since broadband service, in order to be sustainable, must be viewable to a majority of the world's population.